

Remarks Prepared for Delivery
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Thank you, Mark (Mark Andrews, Chair of JPDO Weather Group). And, thanks to the Air Navigation Services, Airport, and Weather working groups for putting this conference together. We have all heard the Mark Twain quotation: “Everybody talks about the weather, but nobody does anything about it.”

We’re here this week to do something about it. While we cannot assure that pilots always have “severe clear” flying conditions, what we can do in the Next Generation Air Transportation System is be a lot smarter about how we detect weather and share weather information.

That’s the entire point of NextGen and weather: Getting the right information ... to the right people ... at the right time ... and in the right format ... to enable the best decisions.

Let me say, first, weather is absolutely an aviation safety issue. It is fitting that this meeting is here at the NTSB Board Room and Conference Center. How many public hearings has NTSB held investigating the causes of aviation accidents? And, how many accidents have been weather related?

Some may say ... those accidents were years ago. In the case of the airlines, that is true. There has not been a fatal Part 121 weather-related accident for nearly nine years since Little Rock on June 1, 1999. In that case, the flight crew may have had accurate and timely information, but they made a very poor decision to try to land.

Yet, the safety issue remains, especially in General Aviation. Some 25 percent of all fatal GA and Part 135 accidents occur in Instrument Meteorological Conditions (IMC). Flying in IMC produces a fatal accident rate that is nearly three times that of Visual Meteorological Conditions (VMC).

Mother Nature is a force to be reckoned with. She affects safety, and, just as crucial for a system that we are building to be more efficient and to meet growing demand — Mother Nature affects on-time performance and capacity.

But, we have technology on our side. And, we have the stakeholders — the smartest people — in the room today.

To meet the goal of a safer, more efficient National Airspace System, we must look to the aircraft with its growing capabilities. Aircraft-centric operations, as envisioned for NextGen, are not new but are an extension of advanced aircraft capabilities. NextGen will use an aircraft's advanced onboard capabilities to enable precise four-dimensional navigation, improve surveillance, and permit aircraft to serve as information "nodes" in the system.

With their onboard capabilities, individual aircraft will be integral to the rapid exchange of robust information between aircraft, and between the air and the ground, which will provide greatly enhanced flight crew situational awareness.

That is the point I want to make today: As "nodes" in the system, aircraft will be collectors of weather information, which will be transmitted to the flight crew onboard for decision making. At the same time, as nodes in the system, aircraft will be disseminators of weather information — information that will be used real time to develop better forecasts and to illustrate current conditions to other users.

As NOAA's Jack Hayes put it, "Aircraft will become nodes in a weather sensing network."

Think of aircraft as airborne weather stations. With thousands of aircraft aloft at any moment that would be an exponential increase in the number of NWS Aviation Services facilities.

During the next two days, you will learn more about NOAA's 4D weather cube and what a critical role this will play in providing a common situational awareness regarding weather. The 4D weather cube will fuse many sources of information together to develop better forecasts for a location (latitude, longitude, and height — for three dimensions) and add the element of time (fourth dimension) so users will be able to more clearly assess the likelihood of weather impacts in advanced decision making. That is the desired end state: A single authoritative source for weather information that can then support many different user groups and the decisions they have to make.

For now, let's focus on the inclusion of easily interpreted weather information / display in the cockpit that is compatible with — and a product of — what 4D cube promises.

Here are some examples of effective advances in air carrier equipage that mitigate the impact of weather on NAS operations.

Technological advancements like TAPS — or the Turbulence Auto-PIREP System — and concepts like TAMDAR — Tropospheric Airborne Meteorological Data Reporting — provide additional benefits in enhancing NAS safety, efficiency, and capacity and help create richer data. TAPS — operationally tested with Delta Air Lines — provides promising evidence that the nation's R & D community — in partnership with operators — can successfully generate and use real-time automatic turbulence reports nationally and internationally. And, the TAMDAR system

exemplifies using aircraft as “nodes-in-the-network” essentially turning the airplane into an automatic airborne weather sensing and data dissemination platform.

These technologies, individually, and in combination with one another, represent a new day from which we can move ever forward toward our NextGen vision.

In the future, with greater volume and complexity, it will be even more essential that flight crewmembers receive timely, accurate, and easily understood weather information.

Yet, today, many air carrier pilots who have access to ACARS receive rudimentary character graphic maps. Those without ACARS must interpret weather information from a verbal description given by the dispatcher or from pilot reports.

At the same time, many in the general aviation community, from the low end to the high end, have a range of weather information options — from hand-held PDAs to panel-mounted displays that show the same NEXRAD radar displays used by NOAA and National Weather Service personnel. In addition, many GA aircraft also have graphical displays of information produced from other weather sensing devices that are on and around airports.

In a “word” — they have pictures and not text, which can be open to interpretation. And, it is words — only words — that are all that is available in far too many Part 121 flight decks.

Here is how Captain Terry McVenes, ALPA’s Executive Air Safety Chairman, puts it. He says it is time for airline pilots to have the capability that any passenger in the back of his airplane, “has with a laptop, a credit card, and a seat equipped with an AirPhone and that is the same access to a weather picture as good as any professional weather specialist may use.”

So, what does this weather picture look like? Yes, as Captain McVenes says, it looks like what is available on the ground at a National Weather Service facility. Everyone — in the air and on the ground — should have the same information tailored for their use.

I cannot stress this strongly enough. The weather information in the cockpit should also be the same as the information that air traffic controllers have. The weather information pilots and controllers have should be the same as what the operators have — be they dispatchers, operations control centers, or commercial weather providers.

Everyone must be on the same page. In other words, what we are focusing on here is a key piece of system-wide situational awareness that is largely missing today.

ALPA has challenged the National Weather Service to develop and supply weather information products as a standard rather than each operator developing them independently. That reinforces the need to get away from today’s practice of many system users working from different information ... at different times ... making different — and not always the best — decisions.

As you address the proposals this week, there are a number of issues to consider, such as the type of information needed, the ways to convey it, the ways to depict it, the timeliness of

updates, but, as you do this, please keep ONE thing in mind and that is we must look at this as a SYSTEM.

Today, how we share weather information — person to person (crew to crew and crew to controller), how we operate (multiple systems that are not in sync with one another), and how we make decisions (often giving the flight crew disjointed information with limited options to work from AFTER the fact) is largely the same as it has been in the past.

In order to meet the future challenges, it is essential that we ensure that all of the stakeholders are at the table so that we can find solutions that are both technologically feasible as well as operationally realistic. This is why it is great that we are all here this week — operators, regulator, labor, manufacturers, NOAA and NASA, and more.

We need technical expertise, but we also need the user's perspective.

Regarding that all-important user's perspective, let's put ourselves in the user's seat. The left seat, if you will. You are approaching your destination.

In the cruise phase ... you have lots of time.

You need the crucial weather information before you begin your approach. You need time to digest it ... plan ... and make better decisions.

You are responsible for one of the key pieces for transforming today's NAS to NextGen. You need to address Mother Nature ... not to conquer her. You cannot take her on.

But, we can be aware, informed, and wary. That is what this session is about: Applying and sharing weather information to enable better situational awareness, better decision making, and, ultimately, the ability to conduct more operations safely in the future.

From my perspective, I do not see the primary challenge as needing to invent lots of new technology, but, rather, the challenge is to determine how we can practically integrate and implement many proven technologies that are available today to enhance the overall system through a common situational awareness.

Thank you for calling this meeting and for your participation. As Charlie said, we need a national plan for NextGen, with industry endorsement, rather than a series of well intended, but disconnected efforts.

We are in this together. And, we will solve it together.

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